



SSSSSSSS	MM	MM	BBBBBBBB	RRRRRRR	EEEEEEEEE	QQQQQQ	
SSSSSSSS	MM	MM	BBBBBBBB	RRRRRRR	EEEEEEEEE	QQQQQQ	
SS	MMMM	MMMM	BB	RR	RR	EE	
SS	MMMM	MMMM	BB	RR	RR	EE	
SS	MM	MM	BB	RR	RR	EE	
SS	MM	MM	BB	RR	RR	EE	
SSSSSS	MM	MM	BBBBBBBB	RRRRRRR	EEEEEEEEE	QQQQQQ	
SSSSSS	MM	MM	BBBBBBBB	RRRRRRR	EEEEEEEEE	QQQQQQ	
SS	MM	MM	BB	RR	RR	EE	
SS	MM	MM	BB	RR	RR	EE	
SS	MM	MM	BB	RR	RR	EE	
SS	MM	MM	BB	RR	RR	EE	
SSSSSSSS	MM	MM	BBBBBBBB	RR	RR	EEEEEEEEE	QQQQ QQ
SSSSSSSS	MM	MM	BBBBBBBB	RR	RR	EEEEEEEEE	QQQQ QQ

RRRRRRR	EEEEEEEEE	QQQQQQ		
RRRRRRR	EEEEEEEEE	QQQQQQ		
RR	RR	EE	QQ	QQ
RR	RR	EE	QQ	QQ
RR	RR	EE	QQ	QQ
RR	RR	EE	QQ	QQ
RRRRRRR	EEEEEEE	QQ	QQ	
RRRRRRR	EEEEEEE	QQ	QQ	
RR	RR	EE	QQ	QQ
RR	RR	EE	QQ	QQ
RR	RR	EE	QQ	QQ
RR	RR	EE	QQ	QQ
RR	RR	EEEEEEEEE	QQQQ	QQ
RR	RR	EEEEEEEEE	QQQQ	QQ

Require file for print symbiont facility

Version: 'V04-000'

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FACILITY:  
Symbiont Services.

ABSTRACT:  
Macro and literal definitions for symbionts.

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AUTHOR: G. Robert, CREATION DATE: 01-May-1983

MODIFIED BY:

3B-007 RRB3007 Rowland R. Bradley 20-Jul-1984  
Change PSMS\_ messages NOMOREITEMS, INVSTRLEV, and  
INVSTMNBR to SMBS\_NMOREITEMS, SMBS\_INVSTRLEV, and  
SMBS\_INSTRMNBR, respectively. Delete messages  
PSMS\_INVSCB, PSMS\_REQNOTSUP, PSMS\_INVREQCOD.

3B-006 GRR3006 Gregory R. Robert 29-Apr-1984  
Added PSMS\_FLUSH

3B-005 RRB0014 Rowland R. Bradley 27-Apr-1984  
Remove the Task\_flag macro.

3B-004 RRB0013 Rowland R. Bradley 21-Feb-1984  
Add new STRUCTURE definition for PAGE.

! 3B-003 GRR3004 Gregory R. Robert 23-Aug-1983  
Bugfixes, page\_setup\_modules, form\_setup\_modules,  
sheet\_feed, symbiont-initiated pause\_task and stop\_stream,  
hangup code, read and write item services

! 3B-003 GRR3003 Gregory R. Robert 03-Aug-1983  
Fixes for new design.

! 3B-002 GRR3002 Gregory R. Robert 29-Jul-1983  
Added several macros to access symbiont tables.

! 3B-001 GRR3001 Gregory R. Robert 23-Jun-1983  
Fixed offset\_table macro, added item\_present macro,  
fixed some bugs, added several literals.

! 3B-000 GRR3000 Gregory R. Robert 27-May-1983  
Original version.

! Define program section standard names and attributes

PSECT

CODE = CODE.  
PLIT = CODE.  
OWN = DATA.  
GLOBAL = DATA  
;

! Check that structure id's have a common byteoffset

\$ASSUME (\$BYTEOFFSET (IOB\_L\_STRUCTURE), EQL, \$BYTEOFFSET (PSMSL\_STRUCTURE))

! Check that a quadword of item code flags is adequate

\$ASSUME (SMBMSG\$K\_MAX\_ITEM\_CODE - 1, LSS, 64)

! Delcare useful builtin Bliss functions

BUILTIN

CALLG,  
FFS,  
INIQUE,  
LOCC,  
MOVCS,  
MOVCS,  
MOVTUC,  
REMQUE,  
TESTBITCC,  
TESTBITCS,  
TESTBITSC,  
TESTBITSS  
;

! Declare special linkages

;LINKAGE ANALYZE\_LINKAGE = JSB (REGISTER=0, REGISTER=0, REGISTER=1),

; CAN'T USE THIS UNTIL UNDERSTAND HOW TO PRESERVE R2-R4 INCLUSIVE

FREE\_LINKAGE = JSB (REGISTER=0)

:

; Declare common external routines

EXTERNAL ROUTINE  
BASSEDIT,

LBR\$CLOSE,  
LBR\$GET\_RECORD,  
LBR\$INI\_CONTROL,  
LBR\$LOOKUP\_KEY,  
LBR\$OPEN,  
LBR\$RET\_RMSSTV,  
LBR\$SET\_LOCATE,

LIB\$TRIM\_FILESPEC,  
LIB\$GET\_VM,  
LIB\$FREE\_VM,

STR\$ANALYZE\_SDESC,  
STR\$ANALYZE\_SDESC\_R1 : ANALYZE\_LINKAGE,  
STR\$APPEND,  
STR\$CONCAT,  
STR\$COPY\_DX,  
STR\$COPY\_R,  
STR\$FREE\_TDX,  
STR\$FREE1\_DX\_R4 : FREE\_LINKAGE,  
STR\$GET1\_DX,  
STR\$LEFT,  
STR\$PREFIX,  
STR\$RIGHT  
:

EXTERNAL LITERAL  
PSMS\_HANGUP\_DISPATCH\_ENTRY

:

; Private messages

EXTERNAL LITERAL  
PSMS\_BUFFEROVF,  
PSMS\_EOF,  
PSMS\_ESCAPE,  
PSMS\_FLUSH,  
PSMS\_FUNNOTSUP,  
PSMS\_INVITMCOD,  
PSMS\_INVVMSOSC,

```
PSMS$_MODNOTFND,
PSMS$_NEWPAGE,
PSMS$_NOFILEID,
PSMS$_OSCTOOLON,
PSMS$_PENDING,
PSMS$_SUSPEND,
PSMS$_TOOMANYLEV,
SMBS$_INVSTMNBR,
SMBS$_INVSTRLEV,
SMBS$_NOMOREITEMS
:
```

! Shared messages

```
$SHR_MSGDEF (PSM, PSM$K FACILITY, LOCAL,
(BADLOGI(PC, SEVERE),      | - logic error with PC value
(CLOSEIN, ERROR),          | - unable to close input
(OPENIN, ERROR),           | - unable to open or connect to input
(READERR, ERROR),          | - error reading
(WRITEERR, ERROR)          | - error writing
);
```

! Define structures useful for accessing parameters passed by reference

```
STRUCTURE
$BYTE          [] = $BYTE <0,08,0>
$SIGNED_BYTE   [] = $SIGNED_BYTE <0,08,1>,
$WORD          [] = $WORD <0,16,0>
$SIGNED_WORD   [] = $SIGNED_WORD <0,16,1>,
$LONGWORD      [] = $LONGWORD <0,32,0>
$SIGNED_LONGWORD [] = $SIGNED_LONGWORD <0,32,1>
:
```

! Define structures useful for referencing the "page" of information

```
STRUCTURE
PAGE ARRAY[I, J, K; N, M, UNITS=1] =      ! default is byte referencing
[M * N * UNITS]
(PAGE_ARRAY + (J * K + I) * UNITS)<0,8,0>
:
```

! Message Item Table (MIT) and Service Routine (SRV) table building macros

```
MACRO
MIT_PRESET_ [TAG, RESET, TYPE, ITEM] =
[%NAME('SMBMSG$K', ITEM), MIT_B_TYPE] = %NAME ('MIT_K', TYPE),
[%NAME ('SMBMSG$K', ITEM), MIT_V_RESET] = %IF %NULL (RESET) %THEN 1 %ELSE RESET %FI,
[%NAME ('SMBMSG$K', ITEM), MIT_W_OFFSET] =
SBYTEOFFSET (%NAME ('PSMS', TAG, '_', ITEM))
%:
```

MACRO

```

SRV_PRESET [SERVICE, USER_TYPE] =
[%NAME('PSMSK', SERVICE), SRV_A_SERVICE] =
  %NAME('PSMS', SERVICE),
[%NAME('PSMSK', SERVICE), SRV_V_USER_ALLOWED] =
  %IF %NULL (%USER) %THEN NO_USER
  %ELSE USER %FI
[%NAME('PSMSK', SERVICE), SRV_B_SERVICE_TYPE] =
  %IF %NULL (%TYPE) %THEN SRV_R_GENERAL_SERVICE
  %ELSE %NAME('SRV_K', TYPE, '_SERVICE') %FI
%:

```

; General purpose macros

MACRO

```

ACC_DATA (ITEM) =
  $BBLLOCK [SCB[PSM$T_ACCOUNTING_AREA], %NAME ('SMBMSGSL', ITEM)]
%:

```

```

BLINK (QUEUE_HEADER) =
  VECTOR [QUEUE_HEADER, 1]
%:

```

```

CLEAR_QUAD_ (QUAD) =
  BEGIN
    VECTOR [QUAD, 0] = 0;
    VECTOR [QUAD, 1] = 0;
  END
%:

```

```

CLEAR_STRING_ (DESC) =
  BEGIN
    IF .DESC_CLASS_ (DESC) LEQU DSC$K_CLASS_S ! 0 or 1
    THEN
      INIT_DYN_DESC_ (DESC)
    ELSE
      IF .DESC_SIZE_ (DESC) NEQ 0
      THEN
        STR$FREE1_DX (DESC)
    END
%:

```

```

CODEERR =
  SIGNAL_STOP (PSMS_BADLOGICPC, 1) ! PC implied 3rd arg
%:

```

```

COPY_DX_DX_ (FROM_DESC, TO_DESC) =
  SIGNAL_IF_ERROR_ (STR$COPY_DX (TO_DESC, FROM_DESC))
%:

```

```

COPY_R_DX_ (FROM_SIZE, FROM_ADDRESS, TO_DESC) =
  SIGNAL_IF_ERROR_ (STR$COPY_R (TO_DESC, FROM_SIZE, FROM_ADDRESS))
%:

```

```

COPY_QUAD_ (FROM_QUAD, TO_QUAD) =
  BEGIN
%
```

BAN  
Syn

ADD  
ADR  
ALF  
ARC  
BLA  
CHA  
COL  
COL  
DEC  
DOL  
DOI  
HEI  
LIN  
NUM  
PSN  
RE1  
SCE  
SPA  
SPA  
SS1  
UND  
WID

PSE  
---

Pha  
---  
Ini  
Con  
Pas  
Syn  
Pas  
Syn  
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9 1

```
VECTOR [TO_QUAD, 0] = .VECTOR [FROM_QUAD, 0];
VECTOR [TO_QUAD, 1] = .VECTOR [FROM_QUAD, 1];
END
%.
DECREMENT_ (VALUE) =
BEGIN
  VALUE = .VALUE - 1;
END
%.
DESC_ADDR (DESC) =
$BBLOCK [DESC, DSC$A_POINTER]
%.
DESC_CLASS (DESC) =
$BBLOCK [DESC, DSC$B_CLASS]
%.
DESC_SIZE (DESC) =
$BBLOCK [DESC, DSC$W_LENGTH]
%.
$DYNAMIC_DESC =
$BBLOCK [8] PRESET (
[DSC$W_LENGTH]      = 0,
[DSC$B_DTYPE]       = DSC$K_DTYPE_T,
[DSC$B_CLASS]        = DSC$K_CLASS_D,
[DSC$A_POINTER]      = 0
)
%.
FLINK (QUEUE_HEADER) =
VECTOR [QUEUE_HEADER, 0]
%.
INCREMENT_ (VALUE) =
BEGIN
  VALUE = .VALUE + 1
END
%.
INIT_DYN_DESC_ (DESC) =
BEGIN
  BIND X_DESC = DESC: $BBLOCK;
  X_DESC [DSC$W_LENGTH] = 0;
  X_DESC [DSC$B_DTYPE] = DSC$K_DTYPE_T;
  X_DESC [DSC$B_CLASS] = DSC$K_CLASS_D;
  X_DESC [DSC$A_POINTER] = 0;
END
%.
INIT_QUEUE_HEADER_ (QUEUE_HEADER) =
BEGIN
  FLINK_ (QUEUE_HEADER) = QUEUE_HEADER;
  BLINK_ (QUEUE_HEADER) = QUEUE_HEADER;
```

Mac  
---  
-\$2  
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The  
MAC

```
END
%.
INIT_STAT_DESC_ (DESC, LENGTH, POINTER) =
BEGIN
BIND X_DESC = DESC: $BBLOCK;
X_DESC [DSC$W_LENGTH] = LENGTH;
X_DESC [DSC$B_DTYPE] = 0;
X_DESC [DSC$B_CLASS] = 0;
X_DESC [DSC$A_POINTER] = POINTER;
END
%.
INSERT HEAD (ENTRY_ADDR_, QUEUE_HEADER) =
INSQUE TENTRY_ADDR_.FLINK_(QUEUE_HEADER)
%.
INSERT TAIL (ENTRY_ADDR_, QUEUE_HEADER) =
INSQUE TENTRY_ADDR_.BLINK_(QUEUE_HEADER)
%.
ITEM_PRESENT (ITEM_CODE) =
BITVECTOR [SCB[PSMSQ_ITEM_FLAGS], %NAME ('SMBMSG$K_', ITEM_CODE)]
%.
OFFSET_TABLE_REPEAT_ [OFFSET, FIRST_BIT, SIZE, SIGN] =
OFFSET
%.
PARAMETER_INDEX [] =
BUILTIN NUL[PARAMETER];
LITERAL PARAMETER_INDEX_REPEAT_ (%REMAINING)
%.
PARAMETER_INDEX_REPEAT_ [PARAMETER] =
%NAME ('_P_', PARAMETER) = %COUNT + 1
%.
PARAMETER_PRESENT (PARAM) =
NOT NULLPARAMETER (%NAME ('_P_', PARAM))
%.
PRINT_FLAG (FLAG_NAME) =
$BBLOCK [SCB[PSMSL_PRINT_FLAGS], %NAME ('SMBMSG$V_', FLAG_NAME)]
%.
READ_CHAR_ =
BEGIN
DECREMENT (SCB_SIZE_ (INPUT_RECORD));
CH$RCHAR_A (SCB_ADDR_ (INPUT_RECORD))
END
%.
REMOVE_HEAD (RESULT, QUEUE_HEADER) =
REMQUE T.FLINK_(QUEUE_HEADER), RESULT
%.
```

```
REMOVE_TAIL (RESULT, QUEUE_HEADER) =
    REMOVE_T.BLINK_ (QUEUE_READER), RESULT)
%.

REQUEST_FLAG (FLAG_NAME) =
    SBBLOCK [SCB[PSMSL_REQUEST_CONTROL], %NAME ('SMBMSG$V_', FLAG_NAME)]
%.

SEPARATE_FLAG (FLAG_NAME) =
    SBBLock [SCB[PSMSL_SEPARATION_CONTROL], %NAME ('SMBMSG$V_', FLAG_NAME)]
%.

SERVICE_LIST (SERVICE) =
    BITVECTOR [SCB[PSMSL_SERVICE_LIST], %NAME ('PSMSK_', SERVICE)]
%.

RETURN_IF_ERROR_ (ACTION) =
    BEGIN
        LOCAL STATUS;
        STATUS = ACTION;
        IF NOT .STATUS THEN RETURN (.STATUS);
        .STATUS
    END
%.

SET_DYN_DESC_ (DESC) =
    BEGIN
        SBBLock [SCB[%NAME ('PSMSQ_', DESC)], DSC$B_DTYPE] = DSC$K_DTYPE_T;
        SBBLock [SCB[%NAME ('PSMSQ_', DESC)], DSC$B_CLASS] = DSC$K_CLASS_D;
    END
%.

SIGNAL_IF_ERROR_ (ACTION) =
    BEGIN
        LOCAL STATUS;
        STATUS = ACTION;
        IF NOT .STATUS THEN SIGNAL (.STATUS);
        .STATUS
    END
%.

PSMSL_ = 0,0,32,0
%.

SCB_ADDR_ (DESC) =
    DESC_ADDR_ (SCB [ %NAME('PSMSQ_', DESC) ])
%.

SCB_CLASS_ (DESC) =
    DESC_CLASS_ (SCB [ %NAME('PSMSQ_', DESC) ])
%.

SCB_SIZE_ (DESC) =
    DESC_SIZE_ (SCB [ %NAME('PSMSQ_', DESC) ])
%.
```

```
WRITE_CHAR_(CHAR) =  
BEGIN  
CH$WCHAR_A (CHAR, SCB_ADDR_(OUTPUT_BUFFER));  
DECREMENT_(SCB_SIZE_(OUTPUT_BUFFER));  
END
```

%:  
:

0309 AH-BT13A-SE  
VAX/VMS V4.0

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